

Space Weather Forecast

Issued on Friday, 29 July 2022 at 13:07 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: Chance of Minor Storm intervals days 2 and 3 (30th and 31st).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low over the past 24 hours, with an impulsive Common-class flare, originating from a rapidly developing sunspot region located in the southeast quadrant. There are currently three sunspot regions on the visible disc, with the remaining two sunspot regions both small and stable. There was a small filament (arc of plasma) lifting-off in the southern hemisphere around 28/2200UTC, which produced a very faint Coronal Mass Ejection (CME) seen in imagery at 29/0125UTC, which is yet to be analysed for any potential Earth-directed component. No Earth-directed CMEs were observed.

Solar Wind / Geomagnetic Activity: Solar winds were predominantly at background levels, between 340-400 km/s. The magnetic field was mostly weak, with the all important north-south component, also weak. The resulting geomagnetic activity was Quiet.

Energetic Particles / Solar Radiation: The count rate of energetic particles remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Activity is likely to remain predominantly Very Low with only a slight chance of moderate-class X-ray flares.

Solar Wind / Geomagnetic Activity: No CMEs have been assessed as Earth-directed. Solar winds are expected to be slow-ambient initially, before the arrival of an enhanced solar wind late on day 2 (30th), lifting solar winds to around 500km/s for days 3 and 4 (31st July and 1st August). Geomagnetic activity is forecast to be mainly Quiet with a chance of Unsettled intervals, then to become Unsettled and Active with a slight chance of Minor storm from late on day 2 (30th) into day 3 (31st). Becoming mostly Quiet to Unsettled on day 4 (1st August).

Energetic Particles / Solar Radiation: The count rate of energetic particles is forecast to remain at background with no solar radiation storms occurring.

Geomagnetic Storms:

Geo-Magnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	1	30	20	5
Strong	G3	No	1	2	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 M Class	No	10	10	10	10
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = cm⁻²sr⁻¹s⁻¹)